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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,642	12/05/2003	Michael Redecker	P56987	9637
<div>7590 Robert E. Bushnell Suite 300 1522 K Street, N.W. Washington, DC 20005</div>			<div>EXAMINER THOMPSON, CAMIE S</div>	
			ART UNIT	PAPER NUMBER
			1774	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/26/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/727,642

Applicant(s)

REDECKER, MICHAEL

Examiner

Camie S. Thompson

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on Amendment filed October 10, 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 4-15, 18-20 and 22-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12, 13 and 18-20 is/are allowed.
- 6) ☒ Claim(s) 1, 4-11, 14-15, 17, 22-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. Applicant's amendment and accompanying remarks filed October 10, 2006 are acknowledged.
2. Examiner acknowledges amended claims 1, 4-15, 17-18 and 22.
3. Examiner acknowledges cancelled claims 2-3, 16 and 21.
4. Examiner acknowledges newly added claims 23-24.
5. The rejection of claims 1, 5-10, 14 and 22 under 35 U.S.C. 102(b) as being anticipated by Ichimura et al., U.S. Patent Number 6,337,167 is overcome by applicant's amendment.
6. The rejection of claims 1 and 4-9 under 35 U.S.C. 102(b) as being anticipated by JP 05-281761 is overcome by applicant's amendment.
7. The rejection of claims 1, 6-9, 11, 14 and 21 under JP 10-161329 is overcome by applicant's amendment.

### ***Claim Objections***

8. Claim 13 is objected to because of the following informalities: The status identifier for claim 13 is incorrect. The status identifier should read - - currently amended - -. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

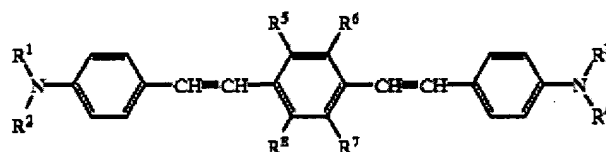
9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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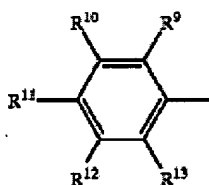
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1, 4-11, 14-15, 17 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichimura et al., U.S. Patent Number 6,337,167 in view of Smith et al., U.S. Pre Grant Publication 2004/0263045.

Ichimura discloses a chemical compound with the structure

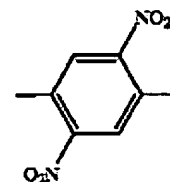


wherein R<sup>2</sup> and R<sup>3</sup> are an unsubstituted aryl; R<sup>1</sup> and R<sup>4</sup> are an aryl group with the formula



with at least one of R<sup>9</sup> to R<sup>13</sup> and the rest hydrogen and R<sup>5</sup> to R<sup>8</sup> can be a cyano, nitro or halogen.

Ichimura reads on the present compound when the electron donor group is the fused cyclic ring found in compound 15 or when R<sup>5</sup> and R<sup>7</sup> are cyano groups; the bridging element comprising a

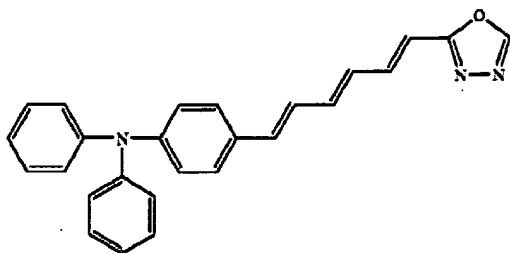


$\pi$ - bridging element is the phenyl group the electron acceptor group can be as shown in the compound examples of the Ichimura reference. Ichimura does not disclose a carbazole group as the electron donor group as in the present claims. However, Ichimura does disclose in reference claim 2 that one of  $R^9$  or  $R^{13}$  can be an aryl group. An aryl group would include a carbazole group. Figure 36 of the Ichimura reference discloses an electroluminescent device that utilizes the above referenced compounds. Ichimura does not specifically disclose a photoluminescence-quenching device. Smith discloses optoelectronic displays using photoluminescence quenching (see abstract). Additionally, Smith discloses in paragraph 0021 that electroluminescent materials normally used in organic light emitting diodes are usually also photoluminescent and that the photoluminescence may be reduced or quenched by applying an electric field to the photoluminescent material. Also, Smith discloses that the suitable structures to quench photoluminescence include conventional OLED structures. The device in the Ichimura reference has a conventional OLED structure. Therefore, it would have been obvious to one of ordinary skill in the art that the device used in the Ichimura reference also operates as a photoluminescent quenching device.

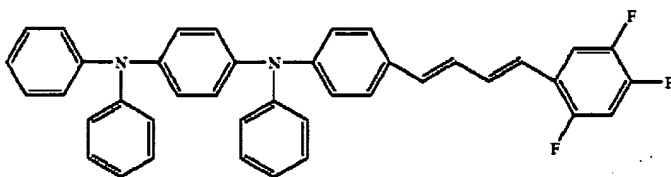
11. Claims 12-13 and 18-20 are allowed. The prior art does not provide for the recited chemical compound, further including the compound being selected from the group consisting of the following compounds of formulas 4a through 4c:

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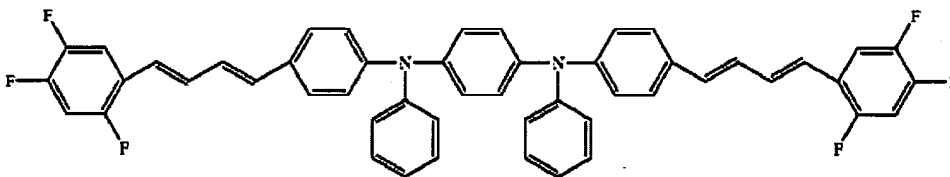
[Formula 4a]



[Formula 4b]

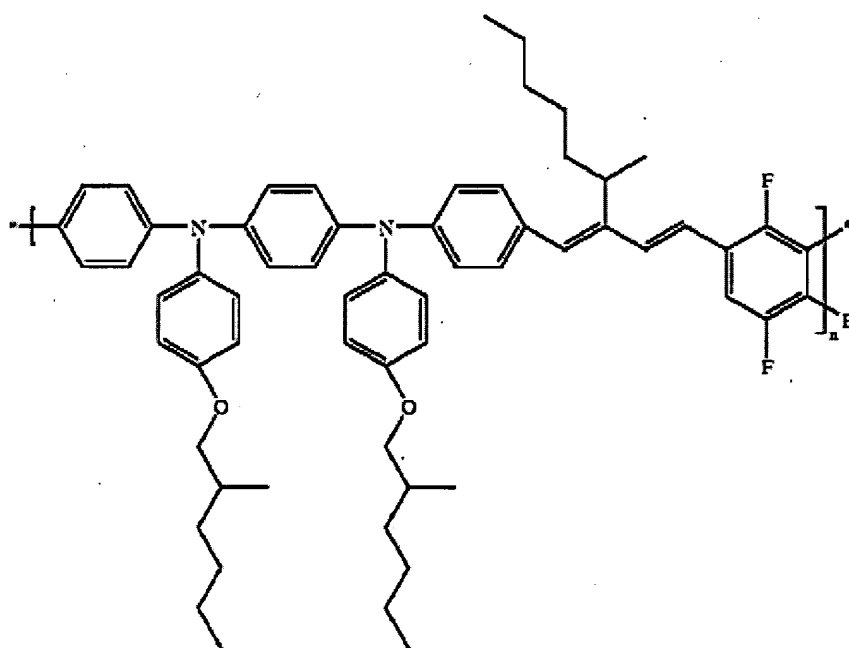
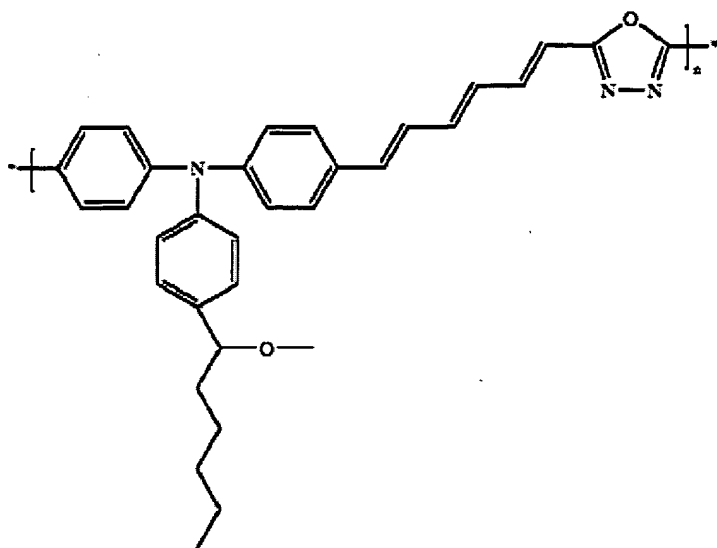


[Formula 4c]

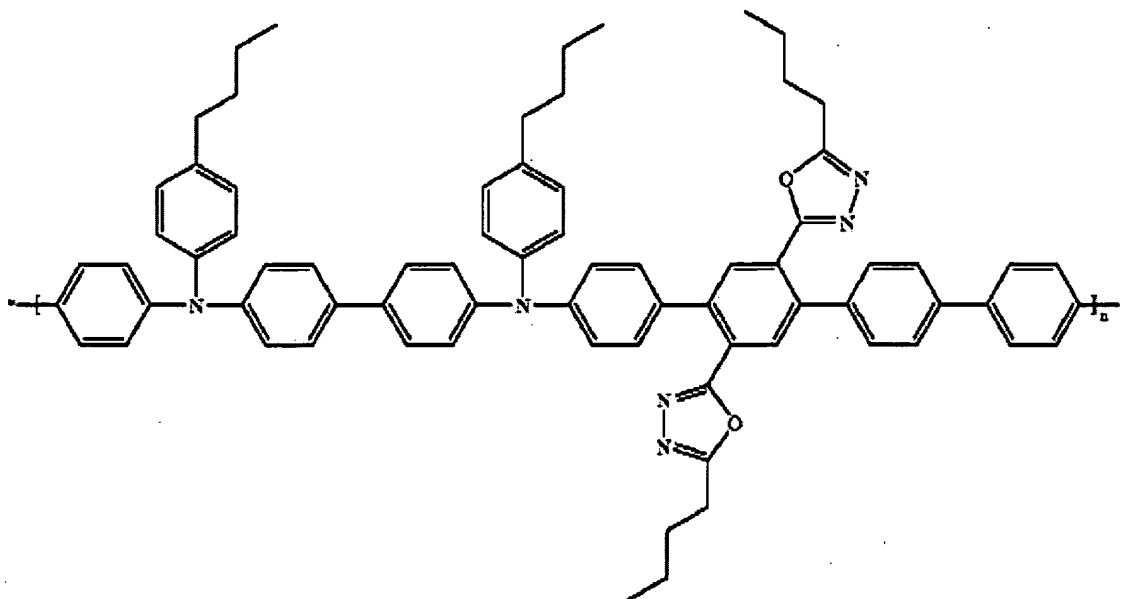


The prior art does not provide for the recited compound, further including the compound being selected from the group consisting of the following compounds of formula 5a through 5c:

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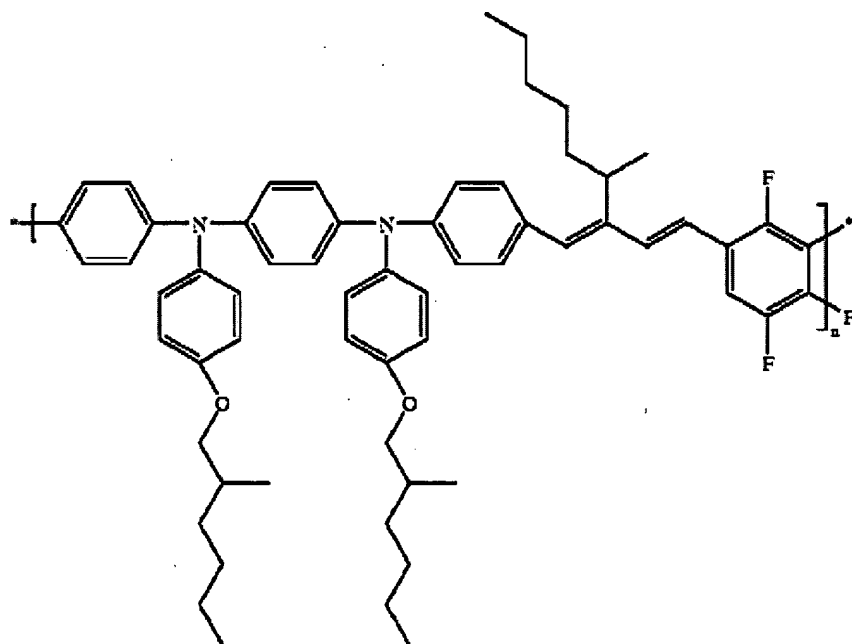
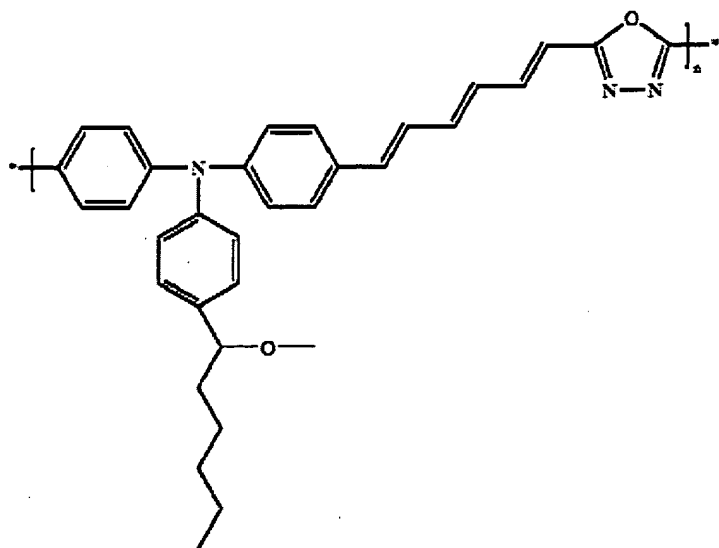


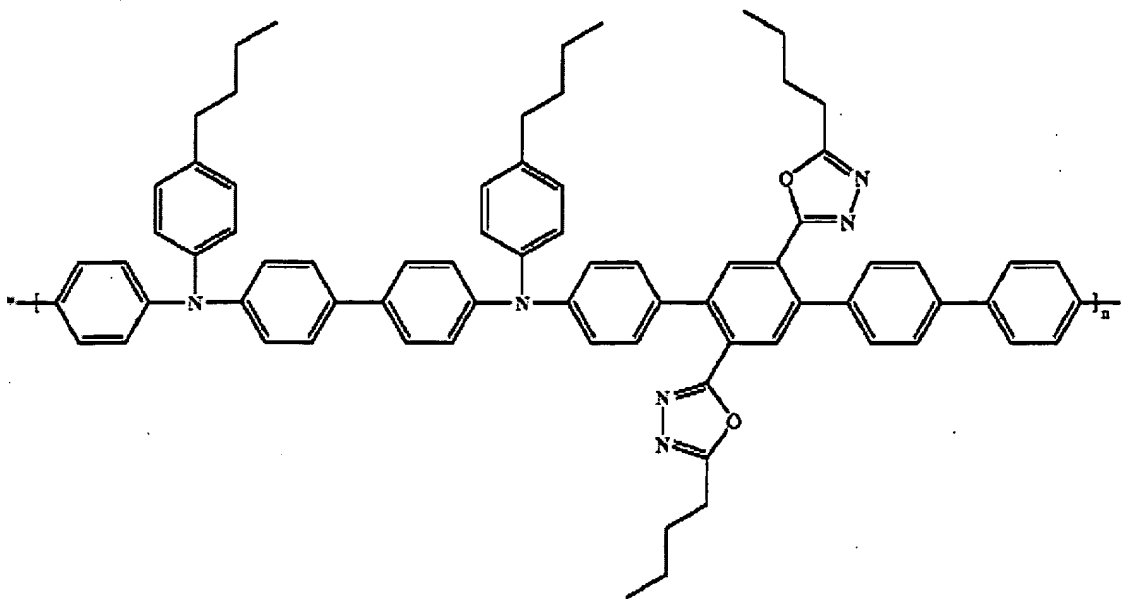
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wherein n is a number ranging from 100 to 2,000. Also, the prior art does not provide for the recited chemical compound, further including the conjugated bridging element is a polymer having a main chain and a branched or side chain having an alkyl group or an alkoxy group. The prior art does not provide for a photoluminescence quenching device comprising the recited chemical compound wherein the device comprises a layer of polyethylenedioxythiophene/polystyrenesulfonic acid and an emitter polymer layer having a material selected from the group consisting of the following compounds:







wherein n is a number ranging from 100 to 2,000. Also, the prior art does not provide for a photoluminescence quenching device comprising the recited compound.

### *Response to Arguments*


12. Applicant's arguments with respect to the instant claims have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (571) 272-1530. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena L Dye, can be reached at (571) 272-3186. The fax phone number for the Group is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
RENA DYE  
SUPERVISORY PATENT EXAMINER  
AU 1774